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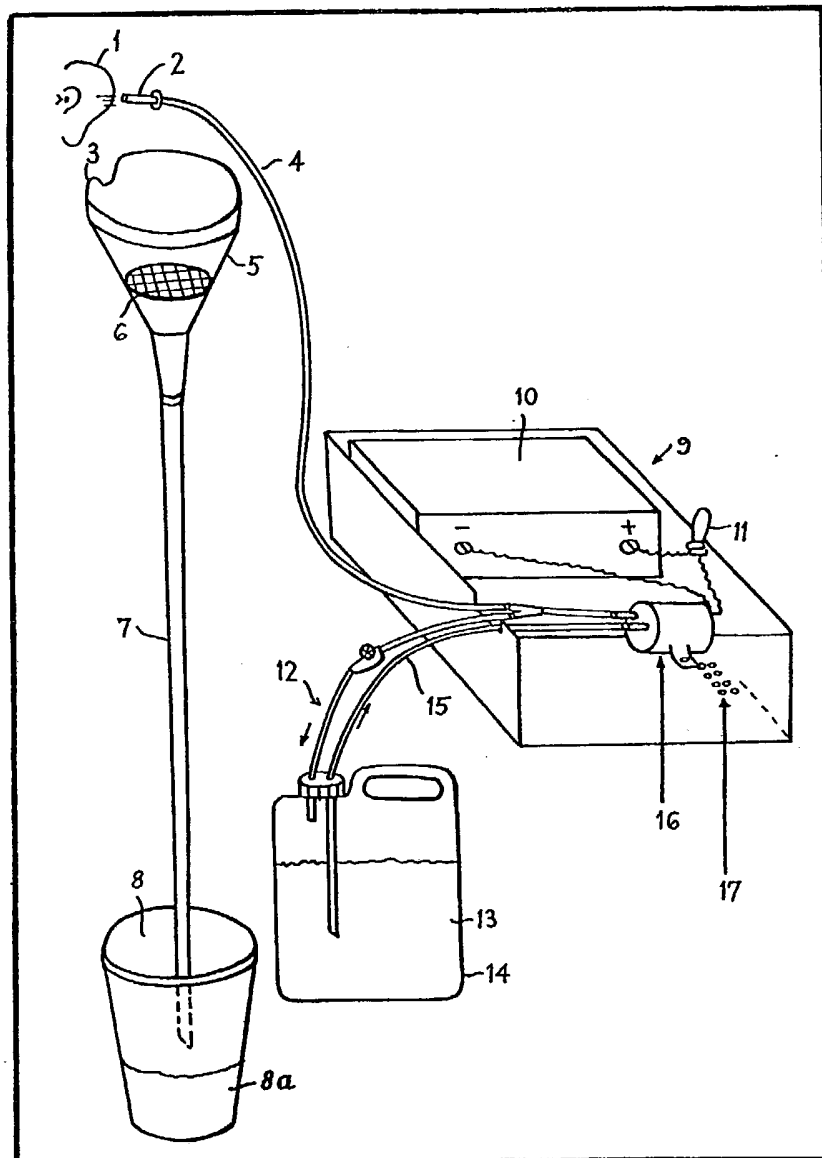
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GB 1367397
GB 0923977
GB 0750593
GB 0632176
GB 0422966
GB 0389137
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(54) Removing wax from a patient's ear

(57) In order to remove wax from a patient's ear, a continuous flow of clean water (or other dewaxing liquid) is directed into the ear from a nozzle placed in the ear canal. Used water and wax discharged from the patient's

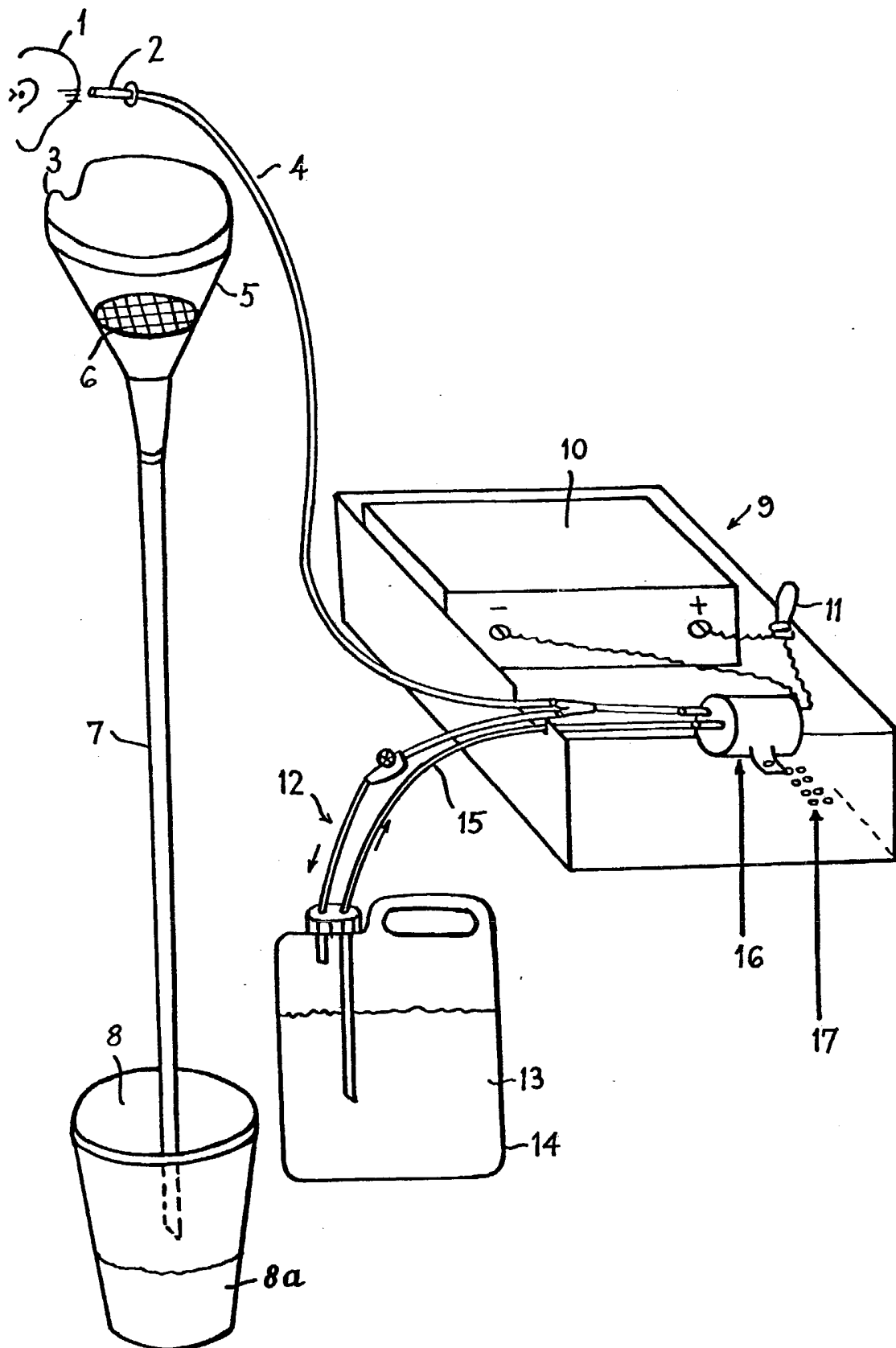
ear is collected in a receptacle positioned below the ear, adjacent the patient's head.

Because of the continuous nature of this dewaxing technique, fewer air bubbles are introduced into the patient's ear and the apparatus is much less tiring to use for the operator.



GB 2 123 697 A

1/1



SPECIFICATION

Earwash instrument with continuous input/drainage

This instrument was designed to meet the
 5 need to clean waxy ears, easily and quickly, in
 General Practice. Its advantage is that it's a
 completely continuous procedure. Previous
 methods involved either intermittent hand-held
 syringe to instil the water, or hand-pumped inter-
 10 mittent flow using a rubber bulb. The outflow
 from the ear is usually collected in a kidney dish,
 and this has to be emptied at frequent intervals,
 again breaking the continuity of the procedure. In
 this new device the drainage outflow is also
 15 continuous; thus the new device has both
 continuous input of water and continuous
 drainage.

To successfully clean a wax-blocked human
 ear requires instillation of a flow of warm water of
 20 up to a gallon per ear, at a gentle rate. The wax
 impairs hearing by preventing the eardrum from
 vibrating freely, and the wax can also completely
 block the external ear tube, stopping the sound
 waves reaching the eardrum.

25 The new device consists of three main
 elements:

(1) A *Control Cabinet* containing rechargeable
 battery, pump, switch and regulator valve, plus
 pipe work.

30 (2) A *Water Reservoir* containing body
 temperature water.

(3) A *Collection System* to catch the water,
 plus wax, as it escapes from the ear.

The *Control Cabinet* contains a sealed 12 volt
 35 rechargeable battery. (12 volts is safer than 250
 volts). This drives a small water pump (of the type
 used for car windscreen washers). The pump is
 energised via an on/off switch. The flow of water
 to the ear is controlled by an adjustable valve that
 40 allows some of the water to flow back into the
 reservoir. The larger the return-flow, the less the
 flow of water to the ear, and vice-versa. The water
 is directed into the ear through a nozzle. This has
 a marker at 2.0 cms. to ensure that the nozzle is
 45 not put too deeply into the ear canal. (The average
 depth of the ear canal to the eardrum is 2.5 cms.).

The *Water Reservoir* needs to contain
 approximately 1 gallon of body-temperature clean
 water. This lasts for approximately 10 minutes.

50 The temperature of the water is important or
 dizziness may be caused in the patient. Water is
 sucked up from the reservoir by the pump. Excess
 water is returned to the reservoir via the relief
 valve, allowing the jet to the ear to be adjusted.

55 The *Collection System*: Previous systems use
 kidney dishes, or other receptacles, which have to
 be emptied at frequent intervals. This system
 uses a funnel, with "notch" to fit comfortably
 under the patient's ear. Water is collected in this,
 60 and passes through a mesh to catch the wax
 particles. The water is then collected via a hose
 into a suitable bucket. With adequate removal of
 the wax from the water, the drainage water could
 be fed back into the water reservoir, thus deleting

65 the need to refill the gallon warm water container,
 but this is thought to be an unnecessary
 complication.

The system has proved to work effectively on
 the patients on whom it has been tried. It is more
 70 comfortable for the patients, since less air bubbles
 are fed into the ear. (These air bubbles are difficult
 to eliminate with the syringe system). The new
 method is also much less tiring for the operator. It
 is also probably slightly faster.

75 Key to drawing

1 Patient's Ear; 2 Nozzle for directing water
 flow into ear; 3 Notch for Patient's Ear; 4 Flexible
 silicone rubber pipe (1/8" bore); 5 Collection
 Funnel; 6 Wire mesh to trap wax; 7 Silicone
 80 Tubing 3/4" diameter; 8 Water Collection bucket;
 8a Waste Water; 9 Small Cabinet for Pump and
 Battery; 10 Rechargeable 12 volt battery; 11
 Switch; 12 Excess flow from pump returned; 13
 Warm Water; 14 Water Reservoir; 15 Intake Tube
 85 to Pump; 16—12 Volt Electric Pump; 17 Cooling
 holes in case for motor.

Claims (Filed on 16th June 1983)

1. Apparatus for use in removing wax from a
 patient's ear, comprising means including a nozzle
 90 for positioning in the ear canal, operable for
 directing a continuous flow of clean water (or
 other dewaxing liquid) into the ear, and means,
 including a receptacle for positioning below the
 ear adjacent the patient's head, for collecting
 95 used water and wax discharged from the patient's
 ear.

2. Apparatus according to claim 1, wherein the
 used water and wax collecting means comprises a
 funnel formed at a location on its peripheral edge
 100 with a notch for fitting under the lobe of the
 patient's ear.

3. Apparatus according to claim 2, wherein a
 grid extends laterally within the funnel for
 separating wax from the used water.

4. Apparatus according to any preceding claim,
 wherein the clean water directing means
 comprises a reservoir for clean water, a motor-
 driven pump for continuously pumping water
 from the reservoir to the nozzle through a delivery
 110 line, and a return line connected between a point
 in the delivery line and the reservoir, there being a
 controllable flow control valve in the return line,
 for adjusting the delivery flow rate to the nozzle.

5. Apparatus according to claim 4 as appended
 115 to claim 2, wherein the funnel outlet is connected
 to the reservoir for returning used water to the
 reservoir for re-use.

6. Apparatus according to any preceding claim,
 wherein the nozzle has a marker thereon to
 120 indicate a maximum depth of insertion of the
 nozzle into the patient's ear.

7. Apparatus for use in removing wax from a
 patient's ear, substantially as hereinbefore
 described with reference to the accompanying
 125 drawing.

8. A method of removing wax from a patient's
 ear, in which a continuous flow of clean water (or

other dewaxing liquid) is directed into the ear from a nozzle placed in the ear canal, and used water and wax discharged from the patient's ear is collected in a receptacle positioned below the ear adjacent the patient's head.

9. A method according to claim 8, wherein clean warm water is used at a temperature that is comfortable to the patient and not anticipated to

cause dizziness.

10 10. A method of removing wax from a patient's ear, according to claim 8 and substantially as hereinbefore described.

Amendments to claims filed on 5 Sept 1983
Claims 8, 9, 10 deleted

15 **New or amended claims:— None**

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